

Report 1

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INFO-C451

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## Part 1

### Customer Problem Statement

Students struggle finding time to balance their busy schedules to continue their education, customize how they learn, avoid distractions, and have access to the right types of continuing education in their local environments.

#### Course Availability & Fairer

In today's fast paced environment, distance learning offers a strong appeal to users across the globe. Distance learning brings education directly into a person's life, via a device connected to the internet. Not so long ago, anyone wanting to further their education was limited to physically going on-site somewhere and attending a class, workshop, or training course. With an e-learning platform, learning can be done practically anywhere and at any time. Essentially, content is brought to the student rather than the student having to have the resources, such as time and means of transportation, to name a couple. Having content brought to you, allows students to earn back some of their precious time commuting to a facility and reallocate much needed time back into their busy schedules.

#### Content & Instructor Accessibility

e-Learning offers a variety of options, that otherwise would not be available to students for easier accessibility. Due to the digital age, content of all kinds are available online offering students access to practically endless opportunities to learn new skills, trades, and knowledge. Additionally, distance learning offsets students' access to content and instructors they otherwise would not have access to. This is critical for most that live where they are living, but their environment does not offer what's necessary for them to advance their knowledge. Moreover, with the teacher shortage, having teachers utilize remote learning provides them more opportunity to impact more individuals' lives.

### *Schedule Flexibility, Self-pace & Time Efficient*

Remote learning is self-paced allowing students to access content whenever and however often they want to study, learn the content, and complete assignments. This type of freedom is dynamic and gives students the ability to utilize their more useful hours. In overflowing daily schedules and busy lifestyle students can choose to dedicate the best time to learn for them that reduces distraction and stronger content retention. Additionally, this lessens the burden of manipulating or cutting out other plans. e-Learning is adjustable to the student needs. Students across the world learn differently and at different paces. Having access to content when and wherever provides students the ability to take as long or as little on study materials. This flexible leisure environment, if used appropriately, can provide a higher success rate. Lastly, e-learning is straight forward, reducing time resource to what's required of you as a student.

## Glossary of Terms

**Login Screen** – The eNviro Learning Login Screen is where a student or teacher will login to access their customized view of the system.

**Scorecard** – Scorecards allow teachers easy accessibility to assign a score on each assignment for each student, and students have the ability to see how good or bad they are doing in a particular course.

**Splash** – Splash functions as a student's homepage and dashboard that displays what classes they are enrolled in that are active and provides quick access links to a specific course's Resource Library, Scorecard, and any course specific announcements.

**Schedule** – Individual students can look at their schedule to see what assignments they have coming up, by the deadline, that's been assigned out

**Course Management** – Course management allows for administrators to de enroll students from specified courses. Additionally, course management allows students to easily add or drop courses.

**News Board** – Teachers have the capability to provide news, announcements, or updates to the class through the News Board. The News Board allows students to stay up to date with general class news to achieve strong open communication from teacher to student.

**Profile** – A student profile provides information about the student, such as their name, a short biography, appropriate contacts, courses currently enrolled in, and an image for other students and teachers to get to know one another easier.

**Account Settings** – Account settings is where any user can update their user/display name for other users to see, provide identifying pronouns, and change their login credentials such as their email address or password.

## Part 2

### Functional Requirements

No.	Priority Weight	Description
REQ-1 (Login Screen)	High	As part of the functionality component, the Login Screen is critical for any user to access the eNviro Learning software.
REQ-2 (Scorecard)	High	A scorecard allows both the teacher and the student to see the user's performance in a particular course. This rolling scorecard provides teachers and students insights to adjust earlier on if necessary.
REQ-3 (Splash)	Medium	Have a splash page allows for better usability that offers students a more aesthetic view of their course and main links for those course.
REQ-4 (Schedule)	Medium	This function allows users to quickly see what assignments they have nearing a deadline to ensure that requirements are easier to manage and not forgotten in a centralized location.
REQ-5 (Course Management)	High	Without course management, the system breaks due to the inability to assign specific course(s) (or de enroll) for a specific user.
REQ-6 (New Board)	Low	Have a news board for announcements that teachers can provide their students with within the software beneficial for mass communication. However, mass communication can be established through various other channels such as easter eggs in lectures, emails, group chats, etc.
REQ-7 (Profile)	Low	Although having a profile for each user allow for other users to learn more about you and connect better, it's not something that will hinder the software.
REQ-8 (Acct. Settings)	High	Any security such as changing your username and password to access the software will be found and be able to be adjusted under account settings. This allows users the flexibility to adjust their credentials on their own instead of speaking with an administrator and provide an additional layer of security.
REQ-9 (Resource Library)	High	Teachers and students need to be able to access the various content and assignments to learn and be tested.

## Nonfunctional Requirements (FURPS)

### 1) Usability

- a. Usability is assessed by capturing and setting conditions based around user interface (UI) problems. Things to be included include consistency, accessibility/ease of use, and aesthetics within the UI.

### 2) Reliability

- a. Availability, accuracy, and recoverability are all parts of reliability. Reliability can be measure by looking mean-time-to-failure, frequency of failure, severity of failure, output accuracy, mean-time-to-restore, and predictability of the software.

### 3) Functionality

- a. Functionality is technically and architecturally oriented as feature sets have a wide range of functional requirements that can include workflow, security, licensing, system management, and more.

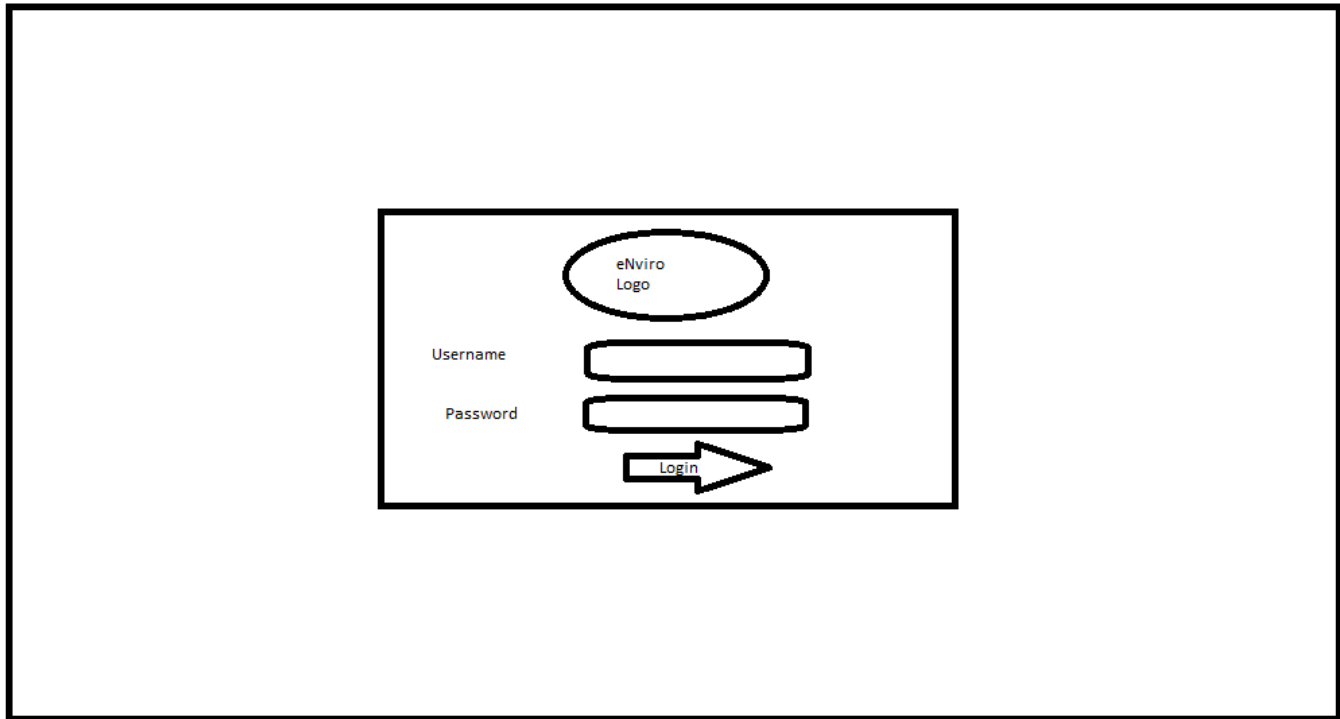
### 4) Supportability

- a. Supportability is the ease of which problems can be isolated and the system can be installed. Other requirements of supportability include serviceability, scalability, maintainability, compatibility, adaptability, instability, configurability, to name a few.

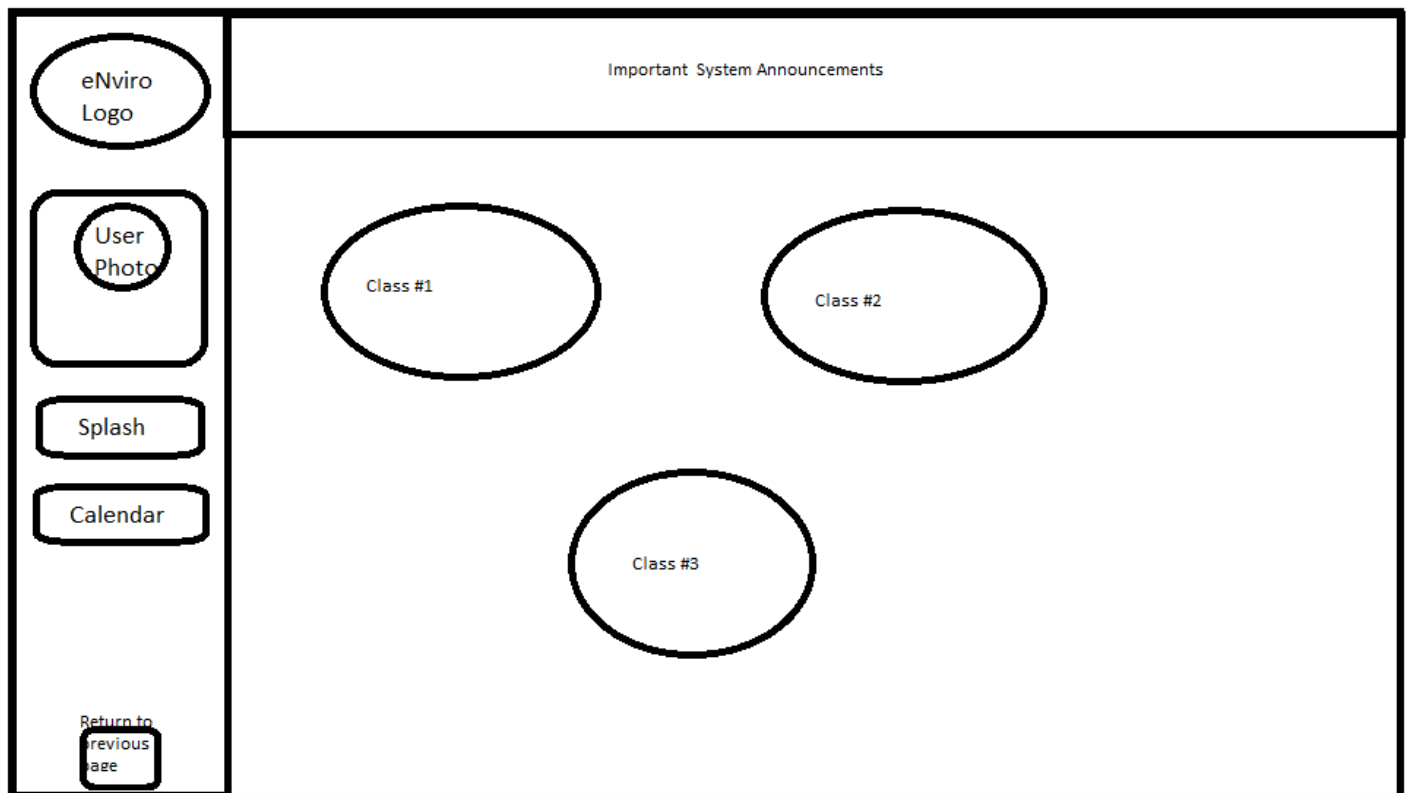
### 5) Performance

- a. Performance can be measured through the involvement of processing speed, system response time, throughput, consumption of resources, and recovery time.

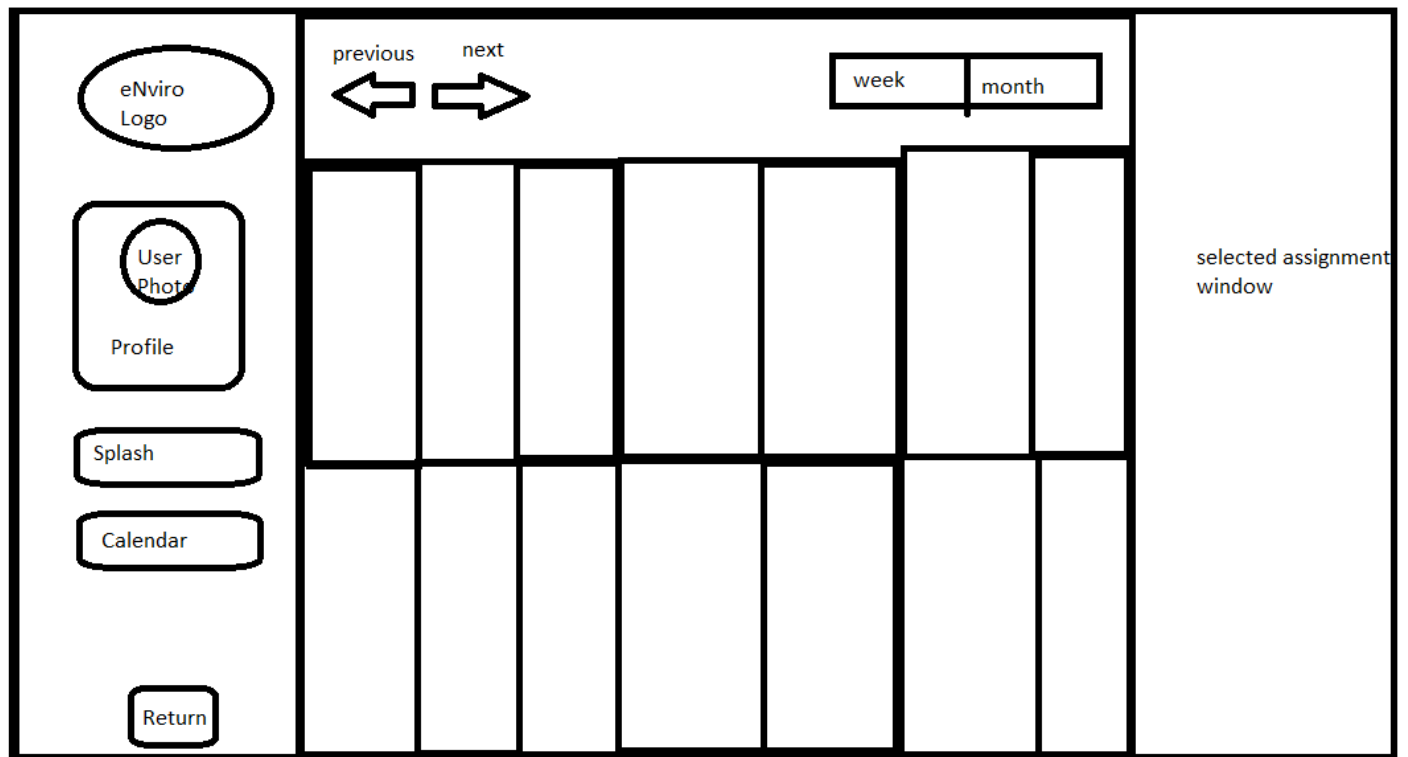
## User Interface Requirements



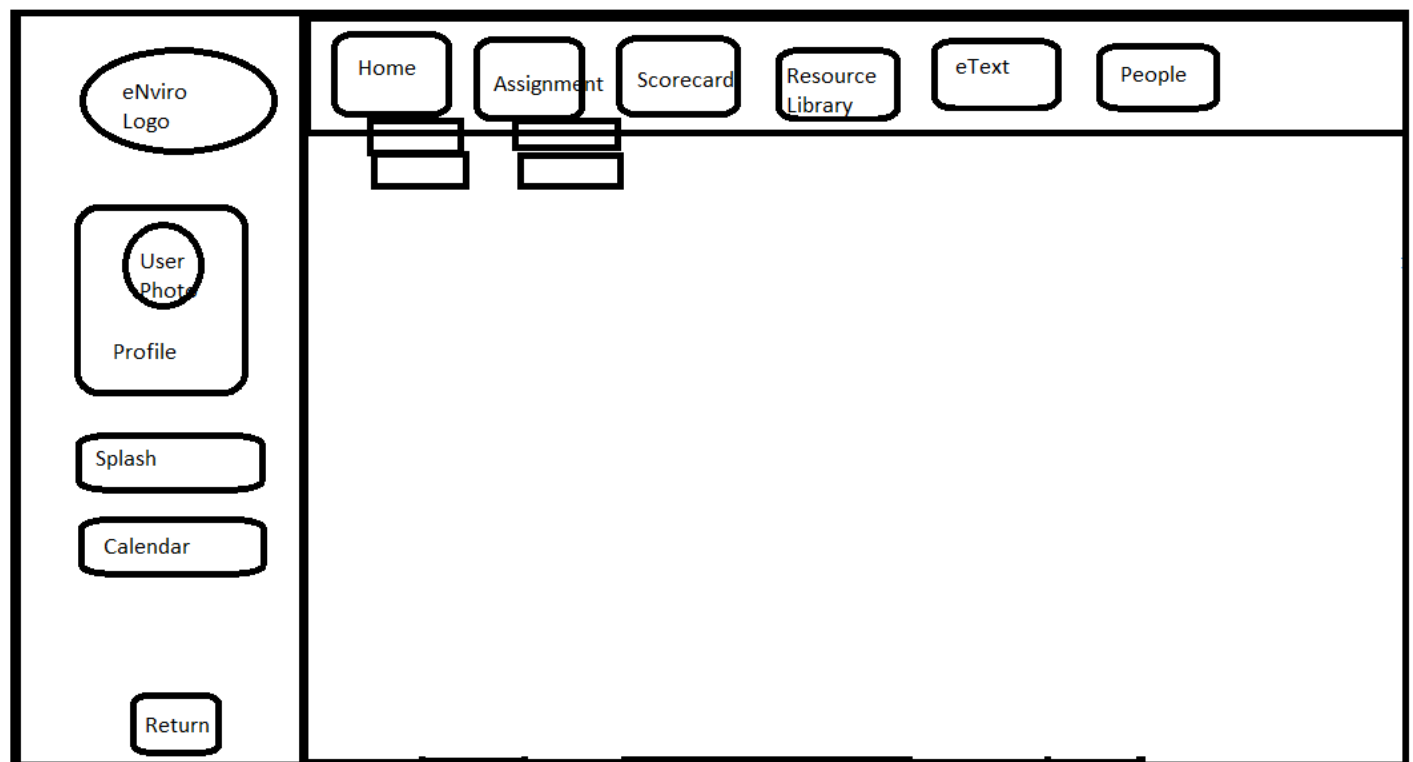
Login Screen



Splash Screen



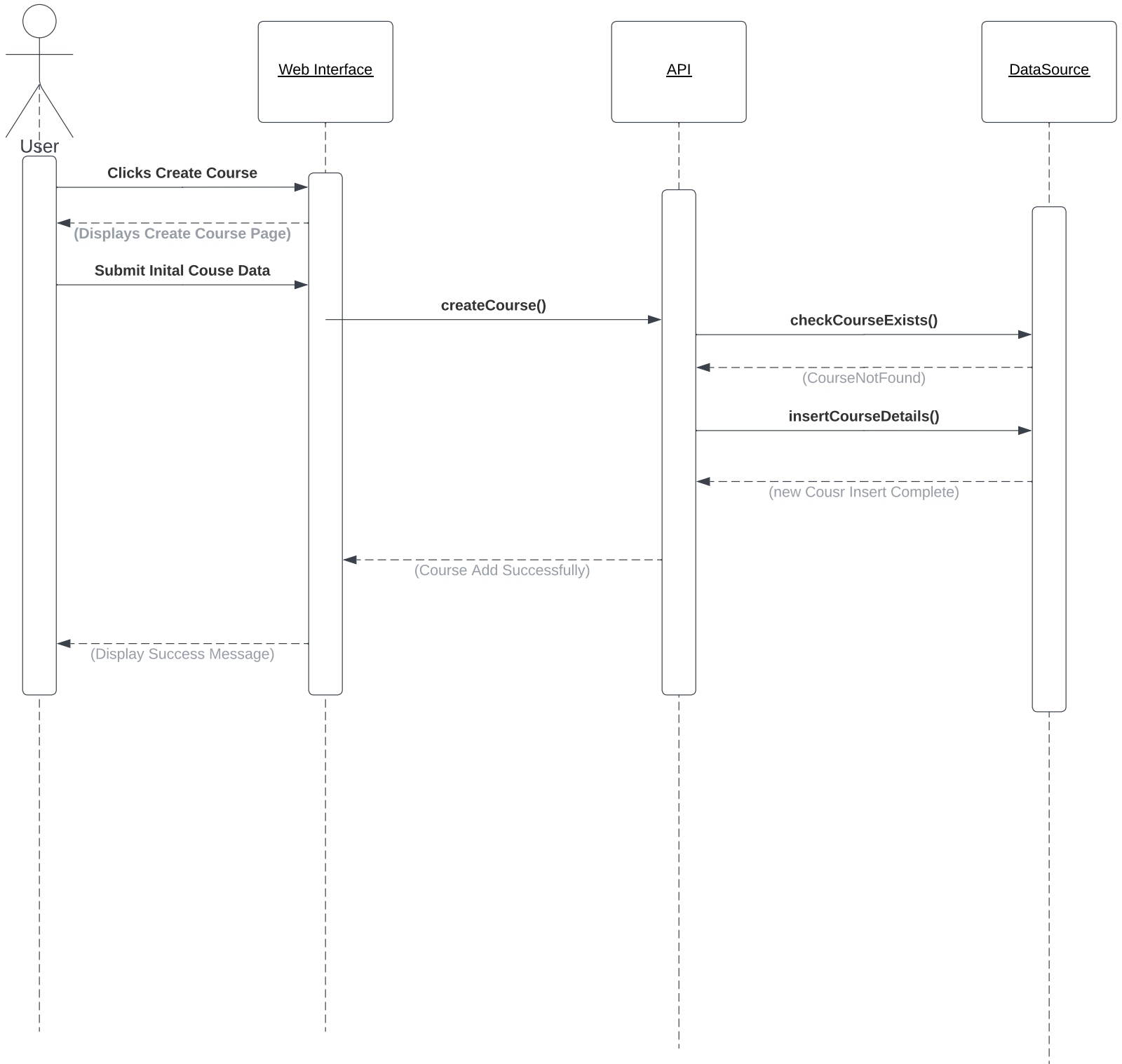
Calendar Screen



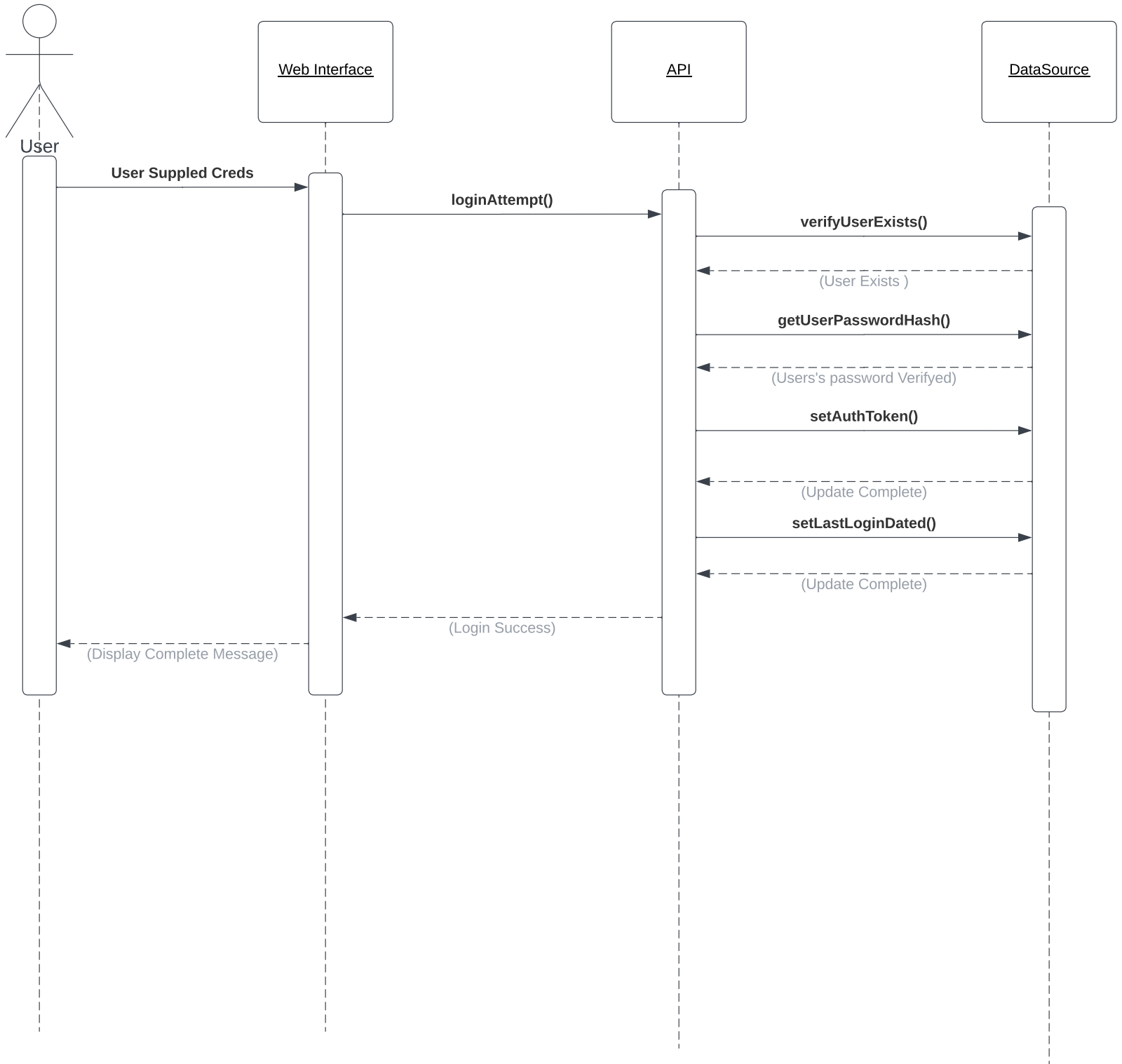
Class Screen



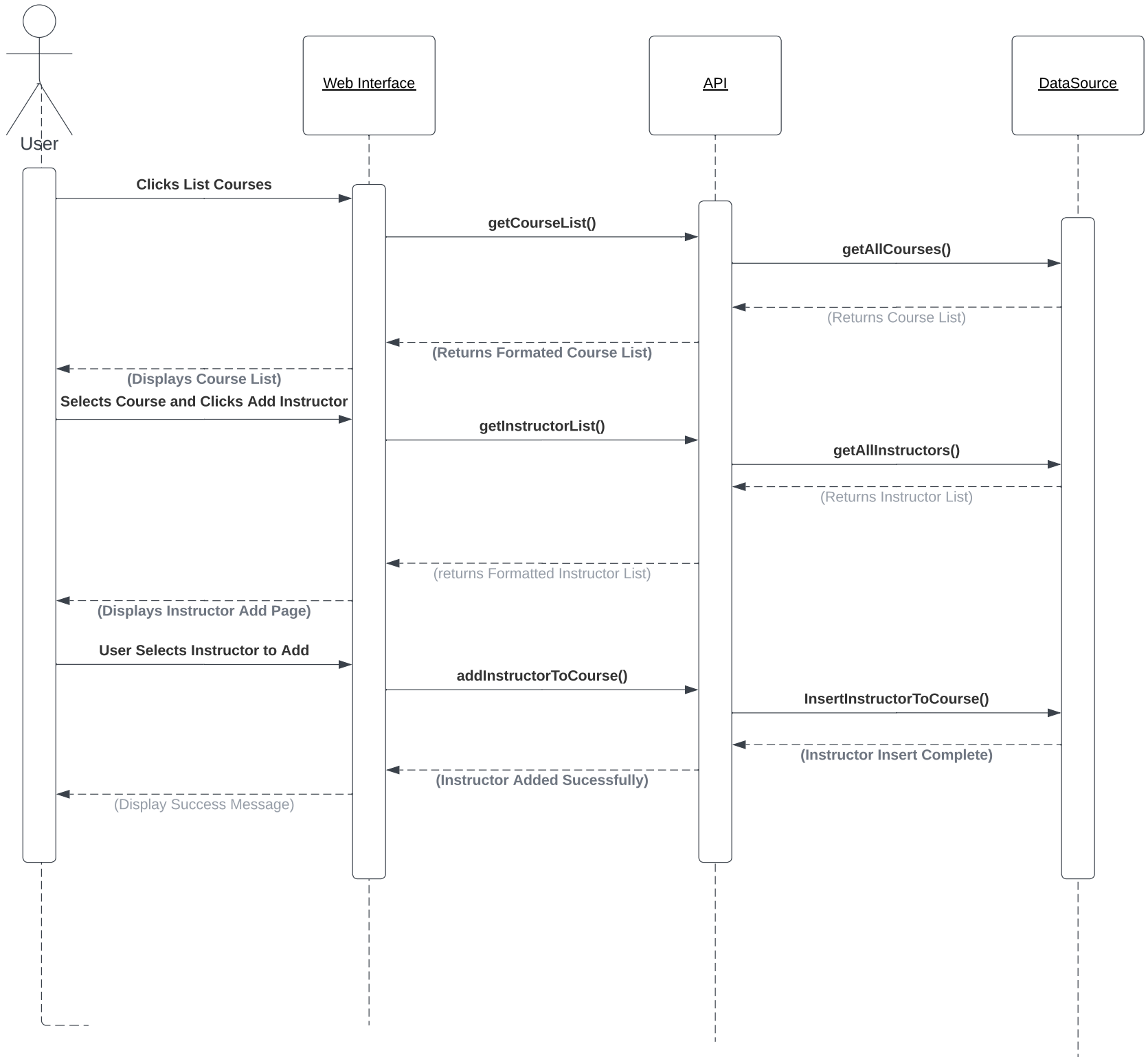
## Create/Edit Course

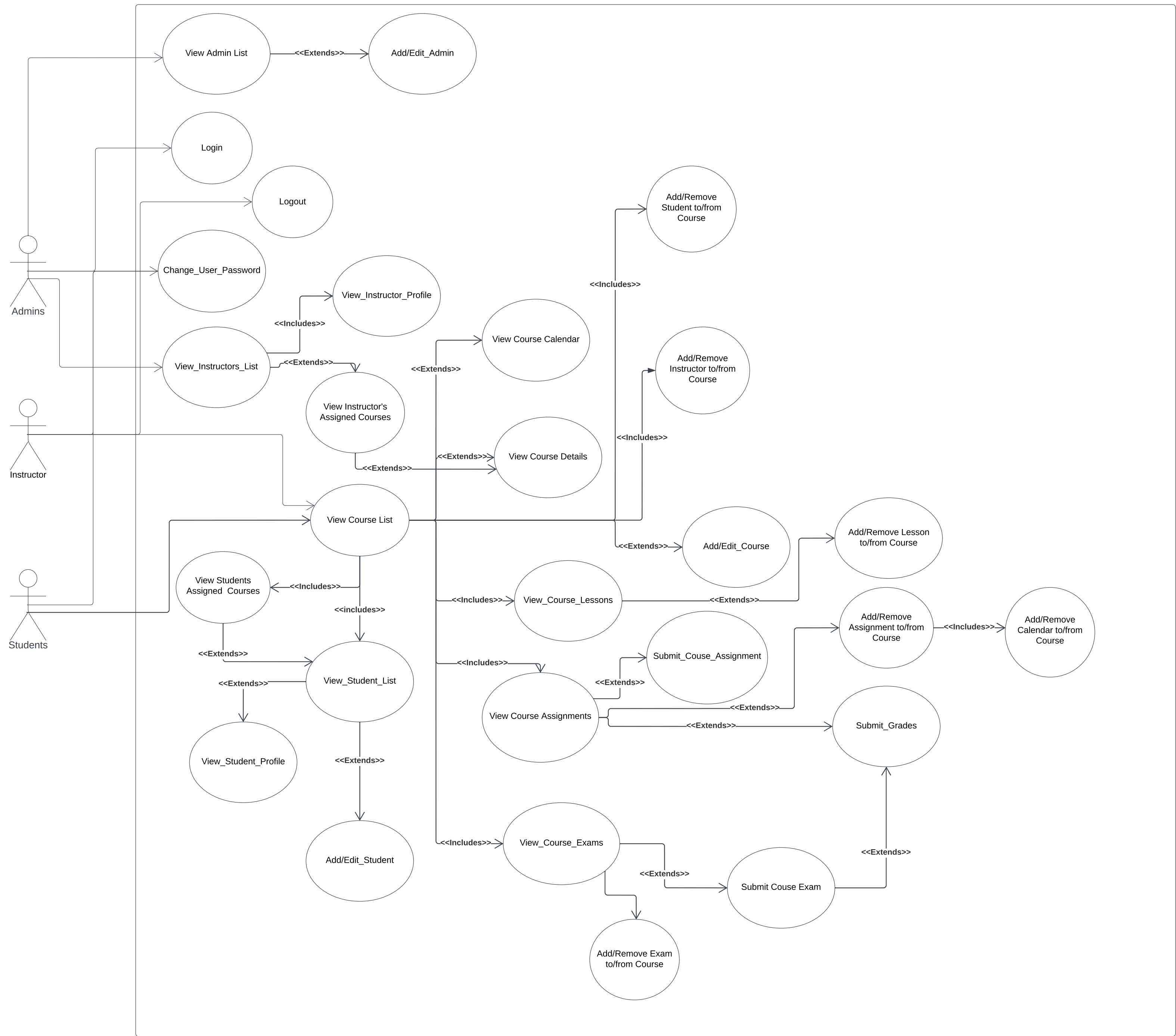


# Login



# Add/Remove Instructor to/from Course





Requirement name	Requirement Description
Login	Allow the users of the system to authenticate to allow access to the components of the system
Logout	Allow the Users of the system to unauthenticate their client with the system to allow unauthorized access to their profile
Change User Password	Allow an to reset their password from the system in the even they forget or lose access to their account with their current credentials.
View Course Calendar	Display the current course assignment that are due on a easy to view calendar
View Course List	Display a list of all courses by Student, Instructor, or all Course in the system
View Course Details	Display the detailed discreation of the course, Requements for taking the course, and any additional relevcent information needed to discribe the course
View Course Exams	Display the detailed discreation of the course, Requirements for taking the course, and any additional relevant information needed to discribe the course
View Course Assignments	Display and list all assignments that exist for the course selected
View Course Lessons	Display and list all Lessons that exist for the course selected
Submit Couese Assignment	Once assignment is Displayed allow a user to complete all parts of the assignment and then submit the results to the system.
Submit Couese Exam	Once exam is Displayed allow a user to complete all parts of the assignment and then submit the results to the system.
Submit Grades	Allow a Instructor to add or change grades for a specific assignment or exam for a student.
View Student List	Display a list of all student that are registered in the system.
View Student Profile	Display a detailed description of student information of a select student
View Students Assigned Courses	Display a List of all courses that are assigned to a specific student.
View Student Course Grades	Display the Grades of a select student by Course
View Instructors List	Display a list of currently registered instructor of the system.
View Instructor Profile	Display a detailed page of Instructor information for a selected instructor
View Assigned Instructor Courses	Display a list of all courses assigned to a selected instructor
Add/Edit Course	Adds the ability to create a Course or modify the current information about a Course.
Add/Edit Student	Adds the ability to create a Student or modify the current information about a Student.
Add/Edit Instructors	Adds the ability to create a Instructors or modify the current information about a Instructors.
Add/Edit Admin	Adds the ability to create a Admin or modify the current information about a Admin
Add/Remove Student to/from Course	Ability to add a student to a course or remove a student from a course
Add/Remove Instructor to/from Course	Ability to add a Instructor to a course or remove a Instructor from a course
Add/Remove Assignment to/from Course	Ability to add a assignment to a course or remove a student from a assignment
Add/Remove Calendar Item For a Course	Ability to add a Calendar Item for a course or remove a Calendar Item for a course
Add/Remove Exam to/from Course	Ability to add a Exam to a course or remove a Exam from a course
Add/Remove Lesson to/from Course	Ability to add a Lesson to a course or remove a student from a course

Requirement name	R	o in creen	R	corecard	R	p as	R	c edu e	R	ourse Mana ement	R	e s oard	R	ro i e	R	cct ettin s	R	Resource i rar
Login																		
Logout																		
Change User Password																		
View Course Calendar																		
View Course List																		
View Course Details																		
View Course Exams																		
View Course Assignments																		
View Course Lessons																		
Submit Course Assignment																		
Submit Course Exam																		
Submit Grades																		
View Student List																		
View Student Profile																		
View Students Assigned Courses																		
View Student Course Grades																		
View Instructors List																		
View Instructor Profile																		
View Assigned Instructor Courses																		
Add/Edit Course																		
Add/Edit Student																		
Add/Edit Instructors																		
Add/Edit Admin																		
Add/Remove Student to/from Course																		
Add/Remove Instructor to/from Course																		
Add/Remove Assignment to/from Course																		
Add/Remove Calendar Item For a Course																		
Add/Remove Exam to/from Course																		
Add/Remove Lesson to/from Course																		
Priority																		

Priority	Priority	Priority
High		
Medium		
Low		

## Actors Stakeholders

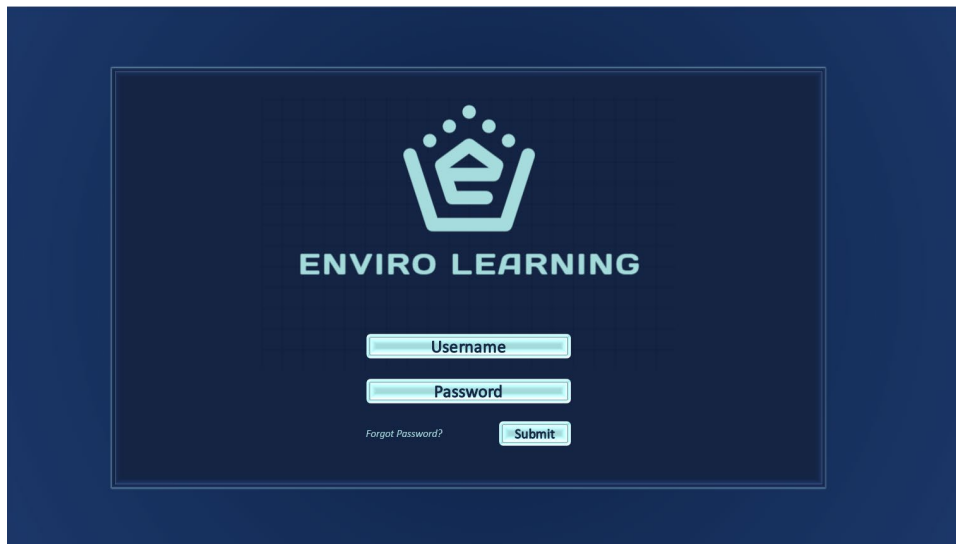
Students,

Instructors,

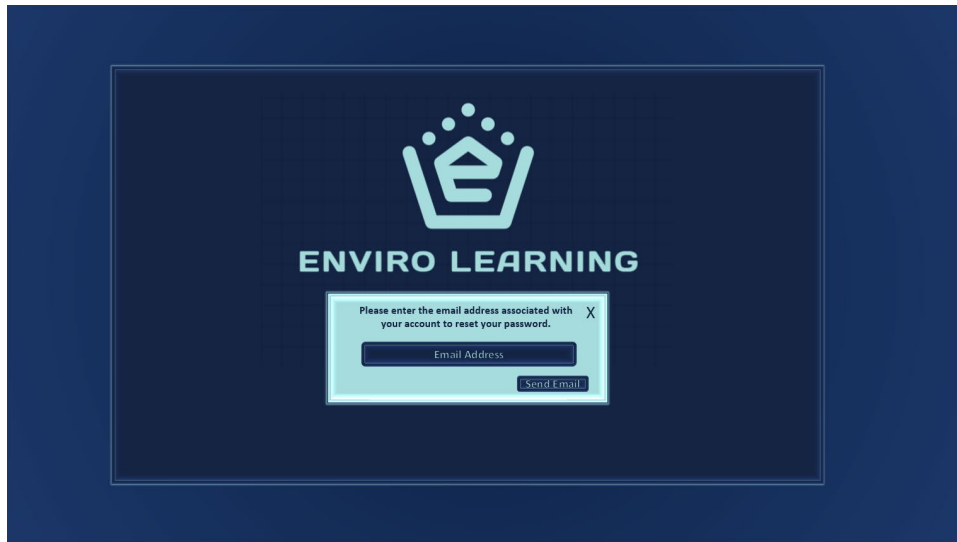
Admins

## Use Cases & Preliminary Designs

Login

The image shows a login form for 'Enviro Learning'. The form is centered on a dark blue background with a subtle grid pattern. At the top is a logo consisting of a stylized 'e' inside a crown-like shape with five dots above it. Below the logo, the text 'ENVIRO LEARNING' is displayed in a bold, white, sans-serif font. Underneath the text are two input fields: the first is labeled 'Username' and the second is labeled 'Password'. Both labels are in a small, white, sans-serif font. To the left of the 'Submit' button is a link that says 'Forgot Password?'. The 'Submit' button is a small, rectangular button with a white border and the word 'Submit' in a small, white, sans-serif font.

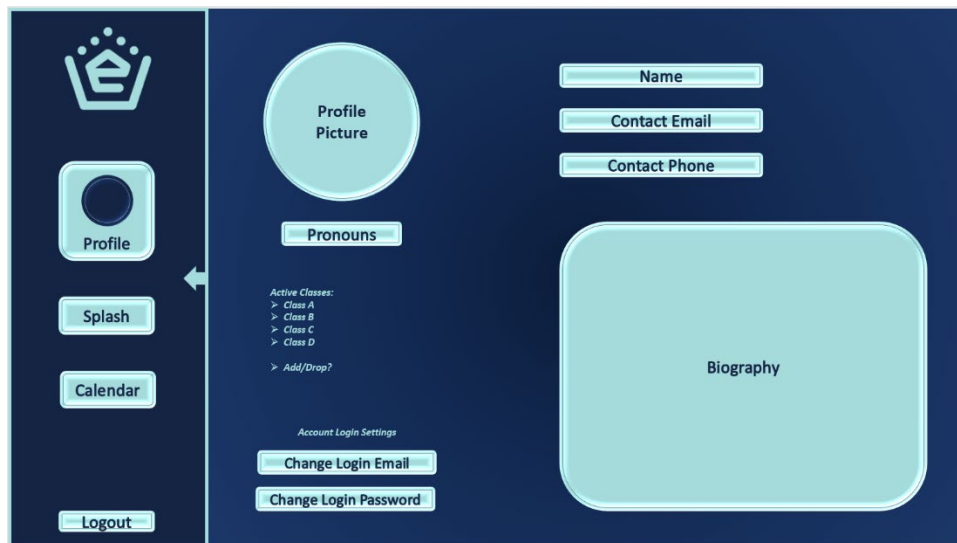
Forgot Password



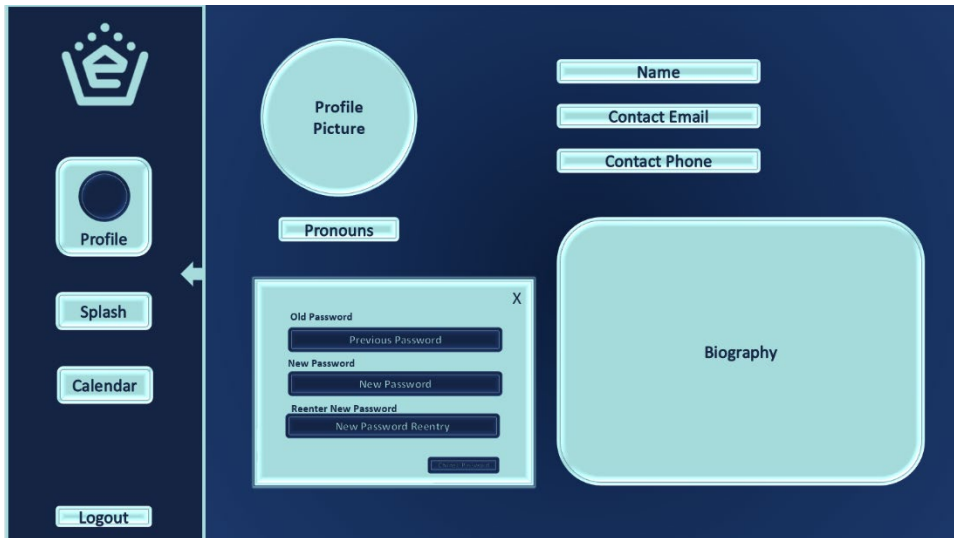
Logout

Add/Edit Course

Change User Password



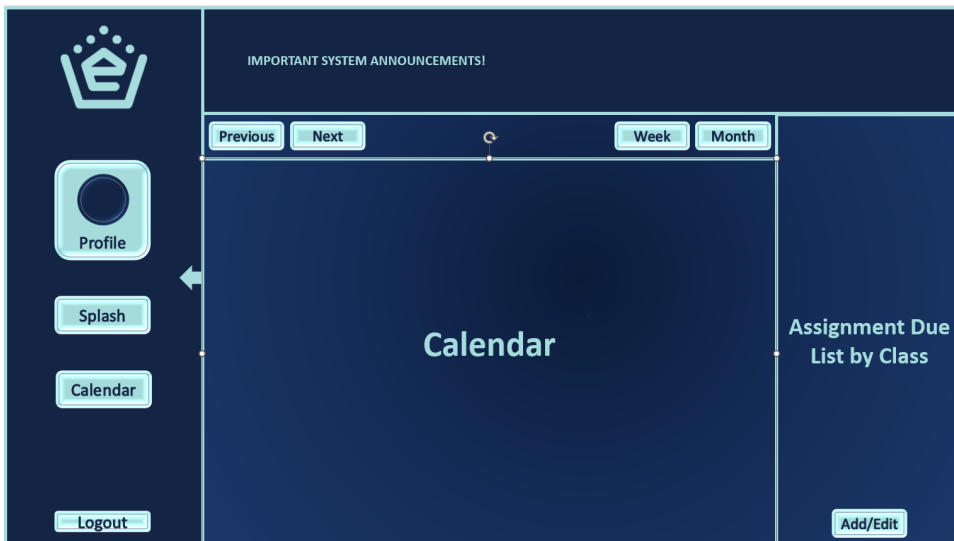




The image shows a user profile management interface. On the left is a dark sidebar with a home icon, a profile picture placeholder, and buttons for 'Profile', 'Splash', 'Calendar', and 'Logout'. The main area has a dark background. At the top left is a circular 'Profile Picture' placeholder. To its right are input fields for 'Name', 'Contact Email', and 'Contact Phone'. Below the profile picture is a 'Pronouns' input field. In the center is a light blue modal box for password changes, containing fields for 'Old Password', 'New Password', and 'Reenter New Password', along with a 'Change Password' button. To the right of the modal is a large rounded rectangle labeled 'Biography'.

Students, teachers, or admins alike, will be allowed to change their account login information from their profile within the portal. In addition, if all requirements of the password, such as length, special characters, number, capitals, etc. Are not met a pop alert will request that they try again with a password that meets all requirements. Once an approved password that meets all the requirements set within the system have been met a successful message will be pulled up and request the user to log back in with their new credentials.

View Course Calendar



The image shows a course calendar interface. The left sidebar is identical to the profile page. The main area has a dark background. At the top is a section for 'IMPORTANT SYSTEM ANNOUNCEMENTS!'. Below this are navigation buttons: 'Previous', 'Next', a circular arrow icon, 'Week', and 'Month'. The central part of the screen is a large dark rectangle labeled 'Calendar'. On the right side, there is a section titled 'Assignment Due List by Class' with an 'Add/Edit' button at the bottom.

View Course List



View Course Details

View Course Exams

View Course Assignments

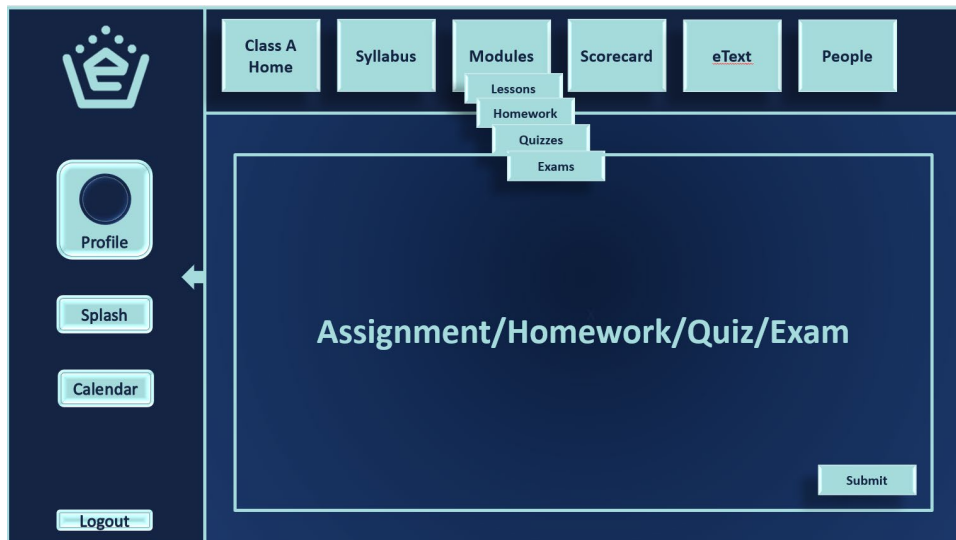
View Course Lessons



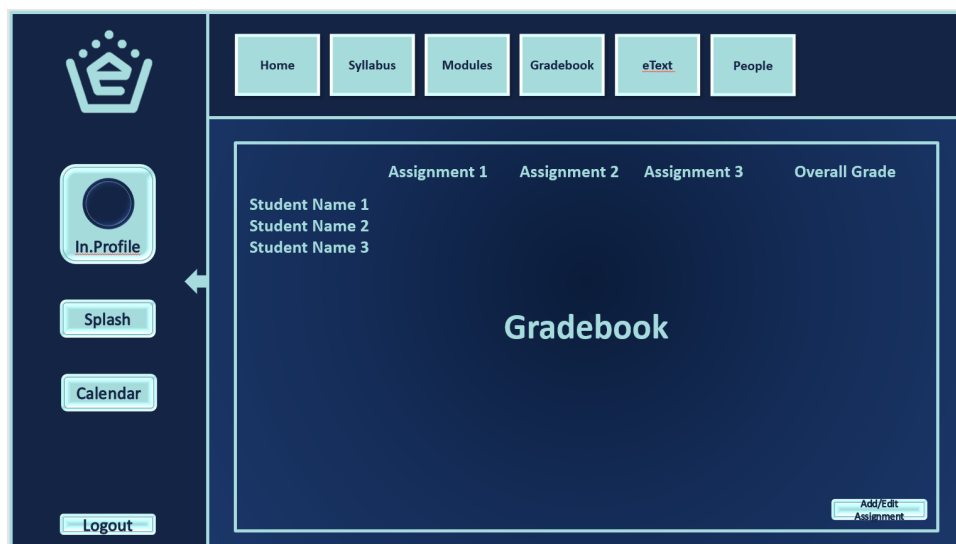
Submit Course Assignment

Submit Course Exam

Submit Course Grades



## View Student Course Grades



View Student List

View Students Assigned Courses

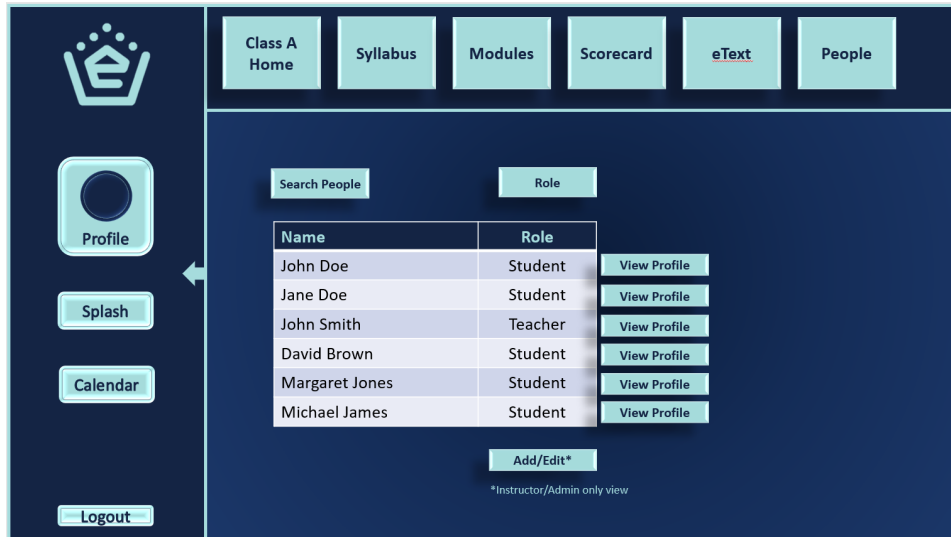
View Instructors List

View Instructor Profile

View Student Profile

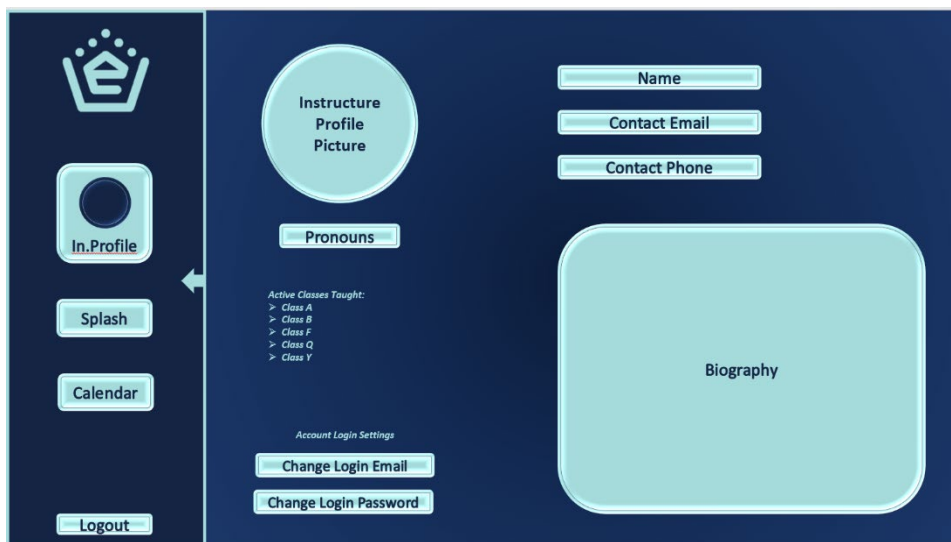
Add/Remove Student to/from Course

Add/Remove Instructor to/from Course



Once an instructor or student is in a particular course, they can visit the “People” tab and either search or filter for specific people and roles. They can also view each individuals' profiles. This is also where instructors or administrators can add or edit the people within a particular course.

#### View Assigned Instructor Courses



Add/Edit Student

Add/Edit Instructors

Add/Edit Admin

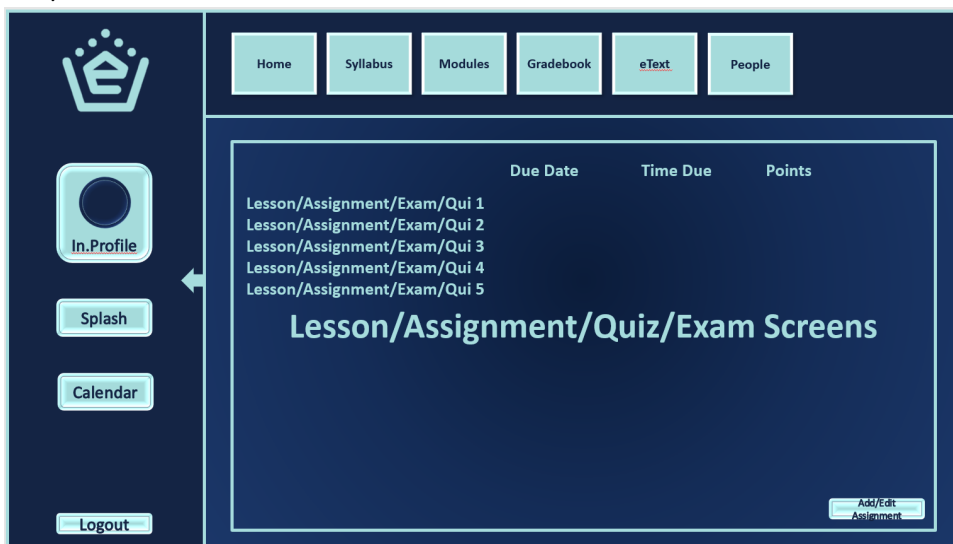


Add/Remove Assignment to/from Course

Add/Remove Exam to/from Course

Add/Remove Lesson to/from Course

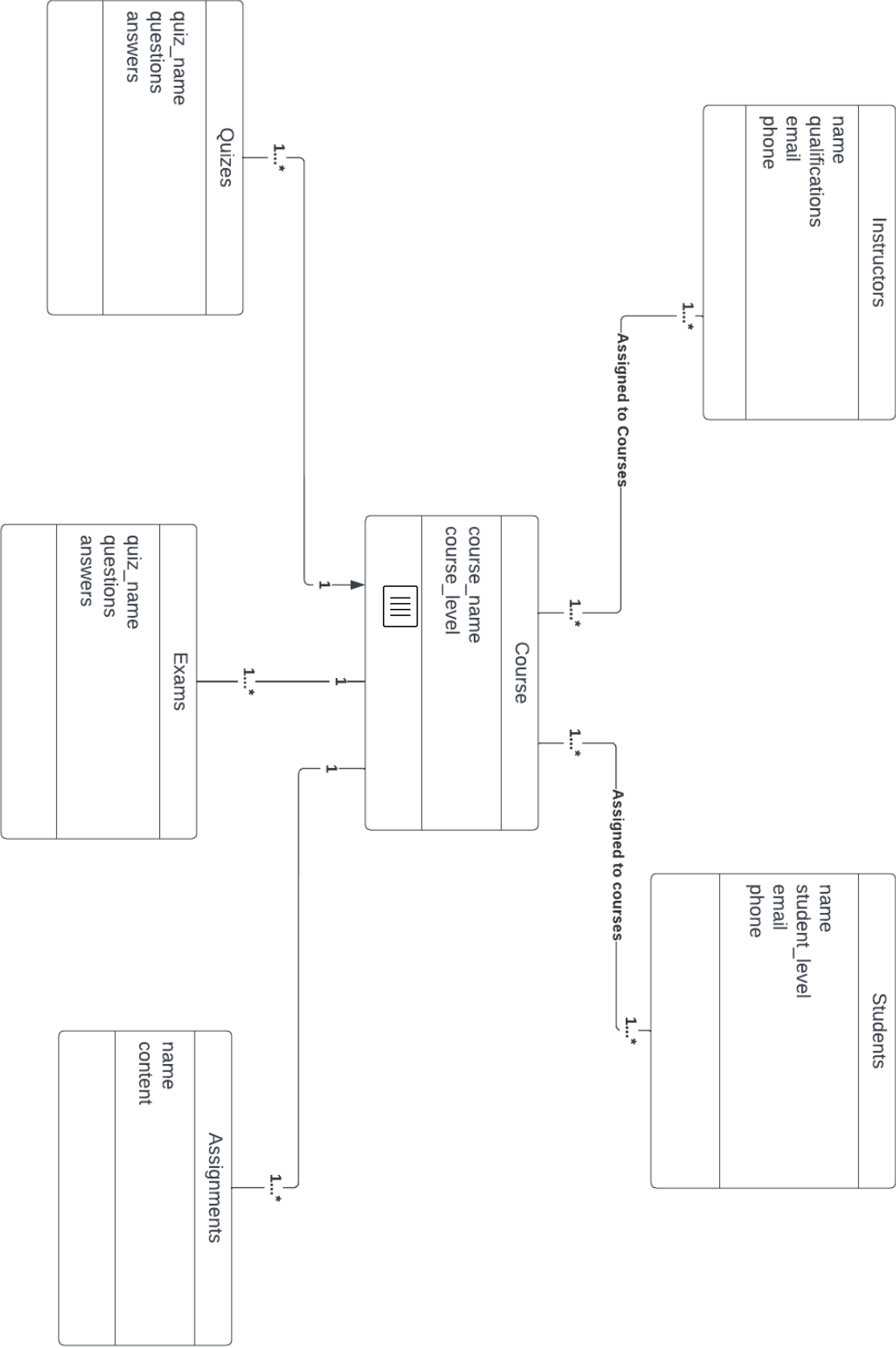
Add/Remove Calendar Item For a Course



Instructors have the capability to add or edit course assignments. Items that are adjustable are the due date, time due, worth/points, and what type of assignment it is such as lesson, discussion forum, homework, quiz, or exam. Additional functionality will allow teachers to schedule and unlock an assignment for students to view. By assigning a due date to a particular assignment, a calendar event will be created. If the assignment is locked, students will not be able to see the details of it. However, they can easily see that an assignment will be available for them to do for a particular class coming up.

## User Effort Estimation

1. View Instructor Profile, View Student Profile - 6 Clicks
  - a. Login
  - b. Splash (Home) screen, click on a specified class
  - c. Select "People" in top navigation
  - d. Locate Student/Instructor and select "View Profile"
2. Add/Remove Assignment to/from Course, Add/Remove Exam to/from Course, Add/Remove Lesson to/from Course - 11 clicks
  - a. Login as an instructor
  - b. Splash (Home) screen, click on a specified class
  - c. Hover "Modules" and click submenu "Lesson"/"Assignment"/"Quiz"/"Exam", depending on what you want to add or edit
  - d. Fill in the requested information such as assignment name/description w/ links and additional resources, due date/time, and points
  - e. Once happy with the content hit Complete
3. Change User Password - 9 Clicks
  - a. Login
  - b. Select "Profile"
  - c. Select "Change Login Password"
  - d. Enter old and new password information
  - e. Finish by clicking "Change Password"



Contact CO1: associateInstructor

Operation: associateInstructor(instructor\_id,course\_id)

Preconditions: Adding an Existing Instructor from Course

Postconditions: record was added to the course\_instructors Database

Contact CO2: createCourse

Operation: createCourse(course\_name,course\_level)

Preconditions: Course addition is inprogress

Postconditions: Record added to the course Database

Contact CO3: submitGrades

Operation: submitGrades (exam\_id,exam\_score,student\_id)

Preconditions: Exam in progress

Postconditions: record created in the exam\_scores database.

Contact CO4: updatePasswd

Operation: updatePasswd(user\_id,new\_password)

Preconditions: Password Change in Progress

Postconditions: update existing record in the user's database.

Contact CO5: addAssignment

Operation: addAssignment (course\_id,assignment\_contents,instructor\_id)

Preconditions: Assignment Addition in progress on a course

Postconditions: add and assignment to the Assignments database



## Project Estimate

The Estimated Size of the project will Span the length of 15 Weeks and is Broken down to into three Parts that Front End, back-End, and Database Structure. The use case point describe 7 Complex use cases, 21 Average Use cases and 2 Simple Use cases.

Wrapping up week 7 means that the initial main student and teacher features will be built within the eNviro Learning platform and identified users such as students, teachers, and administrators will have the ability to login. Features that have and will be implemented by October 9, 2022, include:

- Add/Drop Students
- Adding Course Resources
- Post Various Types of Assignments
- Access/Update Gradebook
- View Assignments/Resources
- Review Work Feedback & Grade
- Update Student or Teacher Profile Information

Leading into week 8 marks the halfway point for the eNviro Learning build, where an initial test of the main features listed above will occur along with an initial demo for documentation and scoring purposes. Testing these features will include basic UX testing of a small sample of users ranging in role and skillsets. Feedback will be provided by the end of the 8<sup>th</sup> week. Once feedback is compiled and understood, the following four weeks will be adding, removing, and modifying key features for users to be efficient and effective learning remotely. During this period, additional testing will occur three quarters into the modification milestone stage. This provides an additional week to make last minute tweaks, modifications, and improvements. Weeks 13 and 14 provides sufficient time for any buffer needed on improving eNviro Learning and further documenting test use cases in preparation for the final demonstration in week 15.

Please review the updated gnat plan that outlines key deadlines on the eNviro Learning schedule.



elViro Learning  
eLearning System Implementation Plan  
William Smith  
INFO-CIS-F422

Task	Assigned To	Progress	Status	Due	7 days	14 days	21 days	28 days	35 days	42 days	49 days	56 days	63 days	70 days	77 days	84 days	91 days	98 days	105 days	112 days	119 days	126 days	133 days	140 days	147 days	154 days
Framework & Structure	Connect Knowledge & Understand	100%	Aug-29-2022	Sep-05-2021																						
	Build system again (for various User Types (teacher vs student)	100%	Aug-29-2022	Sep-12-2021																						
Add new Teacher reports (Student enrollment, adding resources, managing posts, grades)		100%	Sep-12-2022	Oct-09-2022																						
	Add new Student features (New assignments and education material, score links, access discussion forum, review feedback/gra	80%	Sep-26-2022	Oct-17-2022																						
Test new features & record initial demo		20%	Oct-11-2022	Oct-16-2022																						
	Feature Improvement & Additions	6%	Oct-14-2022	Nov-21-2022																						
Establish Test Use Cases		15%	Nov-11-2022	Dec-05-2022																						
	Final Demo	0%	Dec-05-2022	Dec-12-2022																						

## References:



<https://www.w3schools.com/>

<https://stackoverflow.com/>